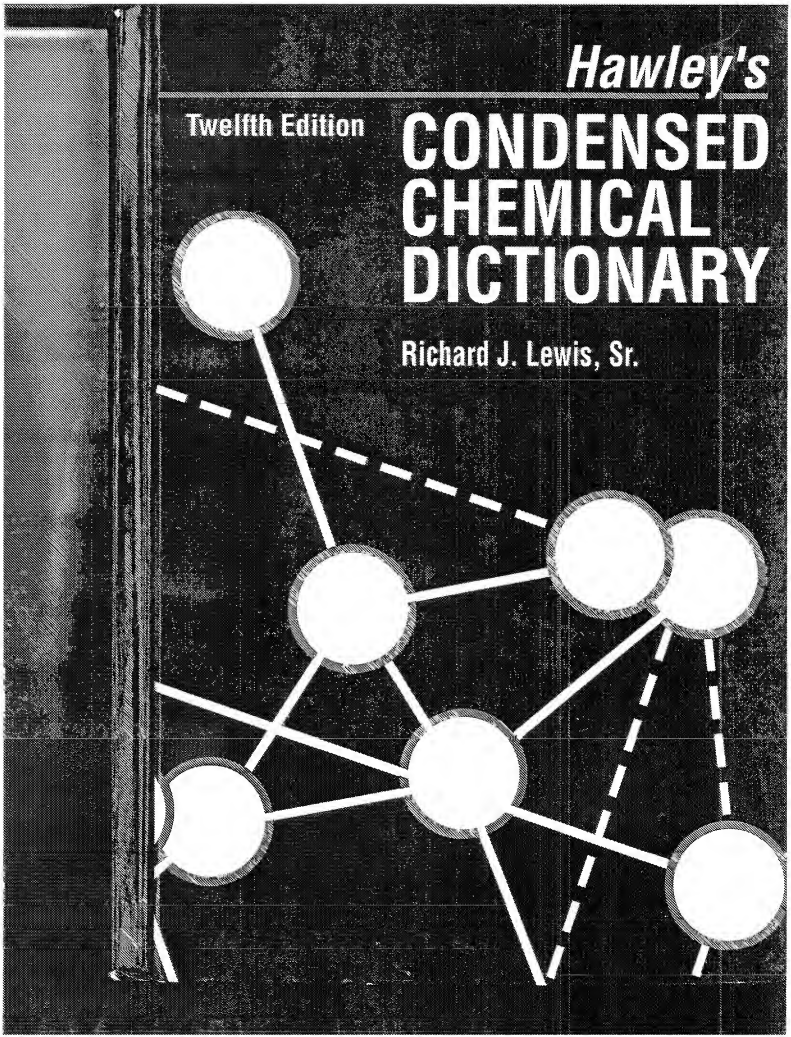
EXHIBIT I

Hawley's

Twelfth Edition

CONDENSED CHEMICAL DICTIONARY

Richard J. Lewis, Sr.



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Condensed Chemical

Dictionary

TWELFTH EDITION

Revised by

Richard J. Lewis, Sr.

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etc. The many types of gauges are activated by mechanical, ultrasonic, electronic, magnetic, and pneumatic means. Some operate on the principle of automatic control. In materials technology, the term "gauge" is often synonymous with thickness, especially in the metals, rubber, and plastics fields. Light-gauge refers to thicknesses from about 0.005–0.05 inch, and heavy gauge to thicknesses from about 0.05–0.150 inch.
See also mil, meter (2).

Gay-Lussac, Joseph Louis. (1778–1850). French chemist and physicist noted for the brilliance and accuracy of his reasoning and experimental work. He contributed greatly to the knowledge of gases in his discovery (1808) of the law of combining volumes and his independent discovery (1802) of the law of Charles, the relationship of temperature to the volume of gases. He graduated from and taught at the Ecole Polytechnique, becoming a full professor in 1810. His work in chemistry was extensive, resulting in the discovery of boron, which he named, with Louis-Jacques Thenard, and a variety of compounds such as boron trifluoride, chloric acid, and dithionic acid ($H_2S_2O_6$). He identified iodine as an element, named it, and studied its properties. He investigated the relationship of acids and bases and introduced many analytical techniques (such as the use of litmus as an indicator). Among his many contributions to industrial chemistry were improvements in the production of sulfuric acid. Much of the progress of chemistry in the early 19th century is associated with his career.

Gay-Lussac's law. A modification of Charles' law to state the following: At constant pressure the volume of a confined gas is proportional to its absolute temperature. The volumes of gases involved in a chemical change can always be represented by the ratio of small whole numbers.

GC. Abbreviation for gas chromatography.

Gd. Symbol for gadolinium.

GDME. Abbreviation for glycol dimethyl ether. See ethylene glycol dimethyl ether.

GDP. Abbreviation for guanosine diphosphate. See guanosine phosphates.

Ge. Symbol for germanium.

gel. A colloid in which the disperse phase has combined with the continuous phase to produce a viscous jelly-like product. Only 2% gelatin in water forms a stiff gel. A gel is made by cooling a solution, whereupon certain kinds of solutes (gelatin) form submicroscopic crystalline particle groups which retain much solvent in the interstices (so-called "brush-heap" structure). Gels are usually transparent, but may become opalescent.
See also pectin.

gelatin. A mixture of proteins obtained by hydrolysis of collagen by boiling skin, ligaments, tendons, etc. Its production differs from that of animal glue in that the raw materials are selected, cleaned, and treated with special care so that the product is cleaner and purer than glue. Type A gelatin is obtained from acid-treated raw materials, and type B from alkali-treated raw materials. Gelatin is strongly hydrophilic, absorbing up to 10 times its weight of water and forming reversible gels of high strength and viscosity. It can be chemically modified to make it insoluble in water for such special applications as microencapsulation of fish nutrients for fish culture.
Properties: Flakes or powder, odorless, tasteless, soluble in warm water and glycerol; insoluble in organic solvents.
Grade: Edible, photographic, technical, USP.
Use: Photographic film; sizing; textile and paper adhesives; cements; capsules for medicinals; matches; light filters; clarifying agent; desserts, jellies, etc. culture medium for bacteria; blood plasma volume expander; microencapsulation; printing inks; nutrient; protective colloid in ice cream.

gelatin dynamite. A high explosive which contains nitrocellulose in addition to nitroglycerin. The product is a gelatinized mass, less sensitive to shock and friction than straight dynamite.

gel filtration. A type of fractionation procedure in which molecules are separated from each other according to differences in size and shape; the action is similar to that of molecular sieves. Dextran gels (3-dimensional networks of polysaccharide chains) are usually used in this method known as gel filtration chromatography.
See also fractionation, molecular sieve.

"Gelgard" [*Dow*]. TM for a synthetic polymeric water-gelling material.
Use: Fire control.

gelled hydrogen. Liquid hydrogen thickened with silica powder.
Use: Rocket fuel.

gel paint. (thixotropic paint). A paint formulation which has a semi-solid or gel consistency when undisturbed, but which flows readily under the brush or when stirred or shaken. After